AP Calculus AB Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Semester Test 1 Review Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Find the limit.

1. 2. 3.

4. Use the intermediate value theorem to show that there is a root of the equation in the given interval.

2x3 + x2 + 2 = 0, (-2, 0)

5. The displacement (in meters) of an object moving in a straight line is given by s = 1 + 2t + t2/4, where t is measured in seconds. Find the average velocity over the time period [1, 2].

Differentiate the following functions. Some may require implicit differentiation.

6. y = (x4 -3x2 + 5)5 7. y = sin(tan x) 8.

9. x3 + x2y + 4y2 = 6 10. 11. y = cot(3x2 + 5)

12. Find equations of the tangent lines to the curve at the points (1, 2) and (4, 4).

13. Find an equation of the tangent line to the curve y = x3 – 2x at the point (2, 4).